Hewlett-Packard Company
HP Integrity rx6600 (1.6GHz/24MB Dual-Core Intel Itanium 2)

<table>
<thead>
<tr>
<th>Name</th>
<th>Rate (base2006)</th>
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<tr>
<td>400.perlbench</td>
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<td>401.bzip2</td>
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<td>464.h264ref</td>
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<tr>
<td>471.omnetpp</td>
<td>103</td>
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<tr>
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</tr>
<tr>
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</tr>
</tbody>
</table>

**SPECint_rate2006 = 102**
**SPECint_rate_base2006 = 94.7**

**Hardware**
- **CPU Name:** Dual-Core Intel Itanium 2 9050
- **CPU Characteristics:** 1.6GHz/24MB, 533MHz FSB
- **CPU MHz:** 1600
- **FPU:** Integrated
- **CPU(s) enabled:** 8 cores, 4 chips, 2 cores/chip
- **CPU(s) orderable:** 1-4 chips
- **Primary Cache:** 16 KB I + 16 KB D on chip per core
- **Secondary Cache:** 1 MB I + 256 KB D on chip per core
- **L3 Cache:** 12 MB I+D on chip per core
- **Other Cache:** None
- **Memory:** 24 GB (24x1GB DIMMs)
- **Disk Subsystem:** 73GB 10K RPM SAS
- **Other Hardware:** None

**Software**
- **Operating System:** HP-UX11i-TCOE B.11.23.0609
- **Compiler:** HP C/C++ Developer's Bundle C.11.23.12
- **Auto Parallel:** No
- **File System:** vxfs
- **System State:** Multi-user
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32-bit
- **Other Software:** MicroQuill Smartheap 8.0
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CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

SPECint_rate2006 = 102
SPECint_rate_base2006 = 94.7

Results Table

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<th>Peak Seconds</th>
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</table>

Operating System Notes

The system had the September 2006 HP-UX 11i v2 Technical Computing Environment (TCOE) and compilers installed, along with the following patches:

PHSS_34858 linker + fdp cumulative patch
PHSS_34853 Math Library Cumulative Patch
PHSS_34854 Integrity Unwind Library
PHSS_34855 HP C Compiler (A.06.12)
PHSS_34856 aC++ Compiler (A.06.12)
PHSS_34857 u2comp/be/plugin library patch
PHSS_34395 FORTRAN I/O Library [libIO77]
PHSS_34397 FORTRAN Intrinsics [libF90 B.11.23.17]
PHSS_34399 Fortran Product Patch, v3.1 to v3.1.1
PHKL_34020 Perfmon enhancements and Itanium Dual-Core

The following kernel tunables were set, in addition to the defaults set by the Technical Computing OE:

dbc_max_pct=20
dbc_min_pct=20
maxdsiz=3221225472
maxssiz=401604608
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CPU2006 license: 03
Test date: Aug-2006
Test sponsor: Hewlett-Packard Company
Hardware Availability: Sep-2006
Tested by: Hewlett-Packard Company
Software Availability: Sep-2006

**Base Compiler Invocation**

C benchmarks:
/opt/ansic/bin/cc -Ae

C++ benchmarks:
/opt/aCC/bin/aCC -Aa

**Base Portability Flags**

400.perlbench: -DSPEC_CPU_HPUX_IA64
   -403.gcc: -DSPEC_CPU_HPUX
462.libquantum: -DSPEC_CPU_HPUX
483.xalancbmk: -DSPEC_CPU_HPUX_IA64

**Base Optimization Flags**

C benchmarks:
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M -Wl,-N

C++ benchmarks:
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M -Wl,-N /usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmartheap.a

**Peak Compiler Invocation**

C benchmarks:
/opt/ansic/bin/cc -Ae

C++ benchmarks:
/opt/aCC/bin/aCC -Aa

**Peak Portability Flags**

400.perlbench: -DSPEC_CPU_HPUX_IA64
   -403.gcc: -DSPEC_CPU_HPUX
462.libquantum: -DSPEC_CPU_HPUX
483.xalancbmk: -DSPEC_CPU_HPUX_IA64
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Peak Optimization Flags

C benchmarks:

400.perlbench: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
  Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
  -Wl,+pd,64M -Wl,+pi,64M -Wl,-N

401.bzip2: Same as 400.perlbench

403.gcc: Same as 400.perlbench

429.mcf: Same as 400.perlbench

445.gobmk: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
  Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
  -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct

456.hmmer: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
  Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
  -Wl,+pd,64M -Wl,+pi,64M

458.sjeng: Same as 445.gobmk

462.libquantum: Same as 456.hmmer

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
  Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
  -Wl,+pd,64M -Wl,+pi,64M
  /usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmartheap.a

473.astar: +Otype_safety=ansi -Wl,-a,archive_shared
  -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap
  /usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmartheap.a

483.xalancbmk: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
  Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
  -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap
  /usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmartheap.a

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.06.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.06.xml
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For questions about this result, please contact the tester. For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
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